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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,793	04/14/2004	Alfred Z. Abuhamad	229436-1 (553-1371US2)	4664
45436	7590	11/16/2009		
DEAN D. SMALL THE SMALL PATENT LAW GROUP LLP 225 S. MERAMEC, STE. 725T ST. LOUIS, MO 63105			EXAMINER COOK, CHRISTOPHER L.	
			ART UNIT 3737	PAPER NUMBER
			NOTIFICATION DATE 11/16/2009	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Docket@splglaw.com

### Office Action Summary

**Application No.**

10/823,793

**Applicant(s)**

ABUHAMAD, ALFRED Z.

**Examiner**

CHRISTOPHER COOK

**Art Unit**

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 and 9-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/GS/US)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to because it is virtually impossible to differentiate what is being disclosed in Figs 3-11. The quality is too poor and examiner maintains one of ordinary skill in the art would not readily recognize what is being illustrated. For example, all images look identical except for the actual shape of the displayed scan plane. Also, the "lead lines" are not clear. The "lead lines" generally refer to an entire plane without indicating specifically where the disclosed organ is in the plane.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

2. Claims 2-7, 10, and 14-15 are objected to because of the following informalities: Claims 2-7, 10 and 14-15 are objected to because they fail to further limit the computer program product and appear to be directed toward the intended use of the product. For example, to properly limit an apparatus claim, a dependent claim should set forth a further structural limitation. Additionally, to properly further limit a method claim, a claim should set forth an active step. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 101***

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-7, 9-15 and 18-21 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Specifically, under its broadest reasonable interpretation, the computer readable media can be directed merely to a signal which is considered non-statutory.

Claim 16 is rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter because these are method or process claims that do not transform underlying subject matter (such as an article or materials) to a different state or thing, nor are they tied to a particular machine. See Diamond v. Diehr, 450 U.S. 175, 184 (1981) (quoting Benson, 409 U.S. at 70); Parker v. Flook, 437 U.S. 584, 588 n.9 (1978) (citing Cochrane v. Deener, 94 U.S. 780, 787-88 (1876)). See also In re Bilski (Fed Cir.

2007-1130, 10/30/2008) where the Fed. Cir. held that method claims must pass the "machine-or-transformation test" in order to be eligible for patent protection under 35 USC 101. In particular, the method of Claim 16 is merely directed toward insignificant pre/post solution activity and therefore does not transform underlying subject matter to a different state or thing. Furthermore, the method is not properly tied to an apparatus for carrying out the method.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 6 and 18-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, it is unclear in Claim 6 how a reference plane can be a "bi-parietal diameter". Examiner notes that the bi-parietal diameter is a specific distance measurement. It is unclear in Claim 18 what is meant by "statistically based". The specific limitation of a "statistic" is not disclosed in the specification. Applicant has indicated that an example of such a statistic is the gestational age of a fetus; however, it is unclear as to what other "statistics" the claim is referring to. As examiner noted before, any image plane could be "statistically based" from other image data. Furthermore, regarding Claims 18-19, "the spatial mathematical relationship" lacks proper antecedent basis. Claim 20 is rejected because it is unclear how the "formula" is not pre-set and based on a user selection. Applicant

has pointed out an example of how the "formula" is not preset by explaining it is based on the relationship of the gestational age of the fetus. Therefore, Examiner contends the formula *is* preset based on the user entered gestational age value.

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 7, and 14-17 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,174,285 to *Clark*.

Regarding Claims 1, 14-17, *Clark* discloses a system and a computer program method comprising instructions for enabling a computer to: acquire ultrasound image data for at least a portion of a body organ (Column 1, Lines 37-50; Column 2, Lines 25-38); generate and define at least one other plane (Column 4, Lines 20-31) with respect to a reference plane (Column 1, Lines 51-57; Column 4, Lines 34-35) for the body organ based on body organ specific data of a relationship of the at least one other plane to the reference plane (Column 4,

Lines 20-31); and displaying automatically and substantially simultaneously at least two ultrasound images corresponding to one of the reference plane and the at least one other plane (Column 3, Lines 35-46). Examiner notes with respect to the broad limitation of the at least one other plane being a "standardized" plane, any other plane displayed is considered a "standardized plane".

Regarding Claim 7, Clark discloses wherein the processing by a computer is associated with sonography equipment (Column 3, Lines 21-34).

8. Claims 1, 7, and 14-20 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,699,641 to *Poland et al.* "*Poland*".

As for Claims 1, 7, and 14-17, *Poland* discloses an ultrasound diagnostic system and a computer program implemented method to acquire ultrasound image data for at least a portion of a body organ (Abstract; Column 1, Lines 22-23; Column 7, Lines 33-37) comprising a transducer (Column 3, Line 46, also, 112 in Fig 1) and a processor (137 in Fig 1). *Poland* further discloses generating and defining a reference plane for the body organ and generating and defining at least one other plane with respect to the reference plane using a spatial mathematical relationship (Column 2, Lines 28-39 and 43-45, Column 4, Lines 54-67, Column 5, Lines 28-35, Column 9, Lines 60-67-Column 10, Lines 1-13 and Lines 20-42). Furthermore, *Poland* discloses a display configured to display automatically and substantially simultaneously at least two ultrasound images corresponding to the reference plane and an other plane directly from a real time volume (Column 5, Lines 36-44; Column 6, Lines 34-35; 150 in Fig 1).

Regarding Claims 18-20, *Poland* discloses an ultrasound diagnostic system and a computer program implemented method to acquire ultrasound image data for planes of a body organ as described above. *Poland* further describes a spatial mathematical relationship based on statistically generated data (Column 9, Lines 66-67-Column 10, Lines 1-10). Further, *Poland* discloses wherein a spatial mathematical relationship comprises at least one formula that relates a reference plane to at least one other plane to define a shift or rotation from the reference plane to at least one other plane determined by a user (Column 10, Lines 20-67).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 2-4, 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,174,285 to *Clark* in view of NPL "Sonography of the Normal Fetal Heart: A Practical Approach" to *Frates*.

Regarding Claims 2-3, *Clark* discloses a system with a computer program comprising instructions for enabling a computer to acquire a plurality of ultrasound image planes for organs as described above. However, *Clark* is silent



with respect to the specific limitation that the body organ is a fetal heart. Clark does disclose it is considered a well known expedient in the art that a four chamber view is a "standard" view when imaging the heart.

*Frates* discloses an ultrasound method for imaging a plurality of planes of the fetal heart (Page 1363 Column 1). *Frates* describes how to manually translate and/or rotate an ultrasound transducer in order to obtain a plurality of different image planes to determine the functionality of a fetal heart (Pages 1364-1366 Column 2) Furthermore, *Frates* discloses wherein a "reference plane" is a four-chamber view (Page 1364, Column 1).

*Clark* and *Frates* are considered analogous art because they are both from within the same field of endeavor with respect to obtaining a plurality of ultrasonic image planes of an organ.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have modified the computer program instructions for obtaining a plurality of image planes as disclosed by *Clark* with specific instructions as to the position/orientation as described by *Frates* in order to evaluate the functionality of a fetal heart during pregnancy. Examiner notes that such a modification is also considered obvious for automating a manual activity (See MPEP 2144.04 and *In re Venner*, 262 F.2d 91, 95, 120 USPQ 193, 194 (CCPA 1958))

As for Claim 4, *Frates* further discloses wherein at least one other plane comprises data defining at least one of a right ventricular outflow tract image

and/or a left ventricular outflow tract image (Page 1364 "Aortic Outflow Tract" and Pages 1365-1366 "Pulmonary Outflow Tract".

Regarding Claims 18 and 21 Frates discloses obtaining image planes based on body organ specific data including gestational weeks ("statistically generated data") (Fig. 11, A-D).

As for Claim 19, the modified automated instructions as to the specific placement of the ultrasound transducer as described above is considered a "formula" since it is merely "expressing a relationship between quantities" (e.g. a shift/rotation of a transducer from one position to another).

Regarding Claim 20, Clark discloses wherein a user may or may not "preset" a "formula" and may enter a specific "formula" (e.g. input parameters which express a relationship for acquiring/displaying ultrasound image planes) (Column 4, Lines 55-65).

11. Claims 2-6 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,699,641 to *Poland et al.* "*Poland*" in view of U.S. Patent No. 6,585,647 to *Winder*.

Regarding Claims 2-6, *Poland* discloses an ultrasound diagnostic system and a computer program implemented method to acquire ultrasound image data for at least a portion of a body organ as described above. Further *Poland* is directed to a cardiology application using standard ultrasound views to visualize

outflow tracts. It is a well known expedient in the art that a well known ultrasound imaging view is a four-chamber view.

*Poland* does not expressly disclose wherein the body organ is a fetal heart or fetal head, nor does *Poland* disclose a reference plane as a biparietal diameter of the fetal head.

*Winder* teaches a diagnostic ultrasound imaging system for imaging fetal organs and surfaces (Column 1, Lines 35-67).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have modified the computer program implemented method disclosed by *Poland* with a system for imaging fetal organs and structures as described by *Winder* in order to visualize and diagnose abnormalities. Further, the specific reference plan chosen would be an obvious choice depending on the specific medical procedure being performed. Therefore, when imaging the head of a fetus, a biparietal diameter reference plan would be an obvious design choice.

12. Claims 5 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,174,285 to *Clark* in view of U.S. Patent No. 7,244,233 to *Krantz et al.* "*Krantz*".

Regarding Claims 5 and 12, *Clark* discloses a system with a computer program comprising instructions for enabling a computer to acquire a plurality of ultrasound image planes for organs as described above. However, *Clark* is silent

with respect to the specific limitation of the organ being a fetal head. Further, *Clark* is silent with respect acquiring ultrasound images for each of the sagittal, transverse, and coronal planes.

*Krantz* teaches from within the same field of endeavor with respect to ultrasound imaging of a fetus, a computerized method wherein the head of a fetus is imaged (Column 3, Line 62-Column 4, Line 5). Furthermore, *Krantz* teaches it is considered a well know expedient in the art to obtain ultrasound images of the sagittal, transverse and coronal planes (Column 10, Lines 26-36).

Therefore, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have modified the computer program instructions as disclosed by *Clark* to acquire and display ultrasound fetal head images acquired in the sagittal, transverse and coronal planes as described by *Krantz* in order to enhance and detect of fetal abnormalities using ultrasound.

With regard to Claim 13, *Clark* discloses wherein the display is "real-time" (Column 2, Lines 21-23).

13. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,174,285 to *Clark* in view of U.S. Patent No. 6,290,648 to *Kamiyama et al. "Kamiyama"* in further view of *Applicants Admission* of the prior art.

Regarding Claims 9-11, *Clark* discloses a system with a computer program comprising instructions for enabling a computer to acquire a plurality of ultrasound image planes for organs as described above. *Clark* is silent with

respect to a computer program comprising image recognition software to facilitate the medical evaluation comprising steps to recognize a specific structure within an image, compare the structure with a reference image, and identify at least one of a normal and abnormal anatomical characteristic of the structure.

*Kamiyama* teaches an ultrasound diagnostic imaging apparatus (abstract) comprising image recognition software used to facilitate a medical evaluation (Column 7, Lines 58-67-Column 8, Lines 1-30). Furthermore, *Kamiyama* teaches wherein the software recognizes a specific structure within an image, compares the structure with a reference image, and identifies at least one of a normal and abnormal anatomical characteristic of the structure (Column 8, Lines 31-67).

Examiner further notes that Applicant has disclosed in the Specification, Paragraph [0067], *"One or more embodiments of the present invention can utilize, for example, standard (e.g. off-the-shelf) image recognition software to assess the level of the standardized planes and diagnose, or facilitate diagnosis..."*. Examiner notes that an "off-the-shelf" program is considered to be well known and commercially available prior to the claimed invention. Therefore, one of ordinary skill in the art would readily recognize a modification to include well known computer software program as disclosed by Applicant and *Kamiyama* to evaluate acquired image data.

14. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,699,641 to *Poland et al.* "*Poland*" in view of U.S. Patent No. 6,290,648 to *Kamiyama et al.* "*Kamiyama*".

As for Claims 9-11, *Poland* discloses an ultrasound diagnostic system and a computer program implemented method to acquire ultrasound image data for planes of a body organ as to provide a medical evaluation as described above.

*Poland* does not expressly disclose wherein image recognition software is used to facilitate the medical evaluation comprising steps to recognize a specific structure within an image, compare the structure with a reference image, and identify at least one of a normal and abnormal anatomical characteristic of the structure.

*Kamiyama* teaches an ultrasound diagnostic imaging apparatus (abstract) comprising image recognition software used to facilitate a medical evaluation (Column 7, Lines 58-67-Column 8, Lines 1-30). Furthermore, *Kamiyama* teaches wherein the software recognizes a specific structure within an image, compares the structure with a reference image, and identifies at least one of a normal and abnormal anatomical characteristic of the structure (Column 8, Lines 31-67).

*Poland* and *Kamiyama* are considered analogous art because they are from the same field of endeavor with respect to diagnostic ultrasound imaging.

Therefore, it would have been obvious to a person of ordinary skill in the art, at the time the invention was made to have modified the ultrasound diagnostic system and a computer program implemented method as disclosed by

*Poland* with software used in a medical evaluation as described by *Kamiyama* in order to provide a identify and type abnormalities.

15. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,174,285 to *Clark* in view of U.S. Patent No. 5,454,371 to *Fenster et al.* "*Fenster*".

Regarding Claim 12, *Clark* discloses a system with a computer program comprising instructions for enabling a computer to acquire a plurality of ultrasound image planes for organs as described above. However, *Clark* is silent with respect to the specific limitations of displaying images of the sagittal, transverse, and coronal planes.

*Fenster* teaches an ultrasound diagnostic system (Abstract) wherein sagittal, transverse and coronal planes are known as conventional orienting views.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have modified the computer program implemented method disclosed by *Clark* with an ultrasound system which acquires sagittal, transverse, and coronal planes as described by *Fenster* in order to acquire multiple image planes and provide a more comprehensive diagnosis.

16. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,699,641 to *Poland et al.* "*Poland*" in view of U.S. Patent No. 5,454,371 to *Fenster et al.* "*Fenster*".

As for Claims 12 and 13, *Poland* discloses an ultrasound diagnostic system and a computer program implemented method to acquire ultrasound image data for planes of a body organ in real time as described above.

*Poland* does not expressly disclose wherein the computer program comprises displaying each sagittal, transverse and coronal planes.

*Fenster* teaches an ultrasound diagnostic system (Abstract) wherein sagittal, transverse and coronal planes are known as conventional orienting views.

*Poland* and *Fenster* are considered analogous art because they are from the same field of endeavor with respect to acquiring multiple, diagnostic, ultrasound images.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have modified the computer program implemented method disclosed by *Poland* with an ultrasound system which acquires sagittal, transverse, and coronal planes as described by *Fenster* in order to acquire multiple image planes and provide a more comprehensive diagnosis.



### ***Double Patenting***

17. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thornton*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

18. Claims 1-7 and 9-21 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1-6 and 18-20 of copending Application No. 11089040. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims 1-20 involve an obvious broadening of the claims in the related application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Response to Arguments***

19. Applicant's arguments filed 07/29/2009 have been fully considered but they are not persuasive. Specifically, Applicant has argued that Poland does not disclose a "standardized" plane generated from one of the acquired image planes. Examiner respectfully notes that a "standardized" plane is not expressly disclosed in the specification; rather, examples of "standardized" are provided. Examiner further notes that the word "standardized" is extremely broad in nature and therefore, merely tilting or rotating an acquired image frame to a different view, in its broadest reasonable interpretation, can be viewed to one of ordinary skill in the art as a "standardized" plane based on a body organ specific data relationship of a reference plane. Examiner also notes that the specific limitation regarding "*based on a body organ specific data of a relationship...*" is again extremely broad in nature and the tilting/rotating an image plane inherently depicting an organ is considered to disclose generating and defining another plane with respect to a reference plane for a body organ based on a "*body organ specific relationship*" similar to how Applicant broadly defines a "formula" as a way to express any *relationship*. As disclosed in the reply by Applicant on 07/29/09, "a formula can be, for example, a way to express a *relationship* between two quantities". Applicant discloses an example of a relationship merely to be shifting or rotating a plane (Table 1 in the specification). Also, with regard to the Applicant's arguments that Poland does not disclose generating an additional plane using a spatial mathematical relationship for the body organ, Examiner respectfully disagrees. Particularly, Poland discloses obtaining additional, tilted image planes based on a reference plane for conducting

longitudinal studies of infarcts (Column 10, Lines 20-22). Poland further discloses that, it is considered a well known expedient in the 2D ultrasound imaging art to acquire a first image ("reference plane") of a heart in one view, then rotating the probe ninety degrees to image the heart in a different view ("standardized plane") (Column 10, Lines 20-42). Therefore, Examiner maintains a geometric relationship is present between the two acquired images.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER COOK whose telephone number is (571)270-7373. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on (571)272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. C./  
Examiner, Art Unit 3737

/Ruth S. Smith/  
Primary Examiner, Art Unit 3737